R E P O R T R E S U M E S

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HOW TO SELECT THE PROPER SECURITY AND EQUIPMENT SURVEILLANCE SYSTEMS TO PROTECT YOUR FACILITIES.

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IN PRESENTING A SURVEY OF MODERN SECURITY SYSTEMS, THIS BOOKLET DISCUSSES THE REQUIREMENTS FOR SURVEILLANCE AND PROTECTION OF AREAS, PERIMETER, AND OBJECTS. A VARIETY OF EQUIPMENT IS DESCRIBED WITH DISCUSSION OF OPERATING PROCEDURES, COSTS, AND RECENT DEVELOPMENTS IN SECURITY SYSTEMS. (JT)

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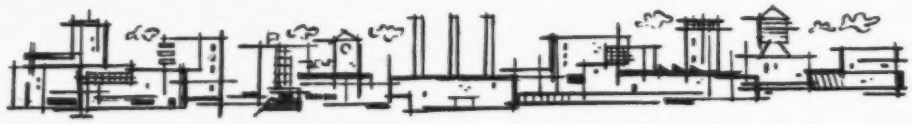
HONEYWELL PLANNING GUIDE



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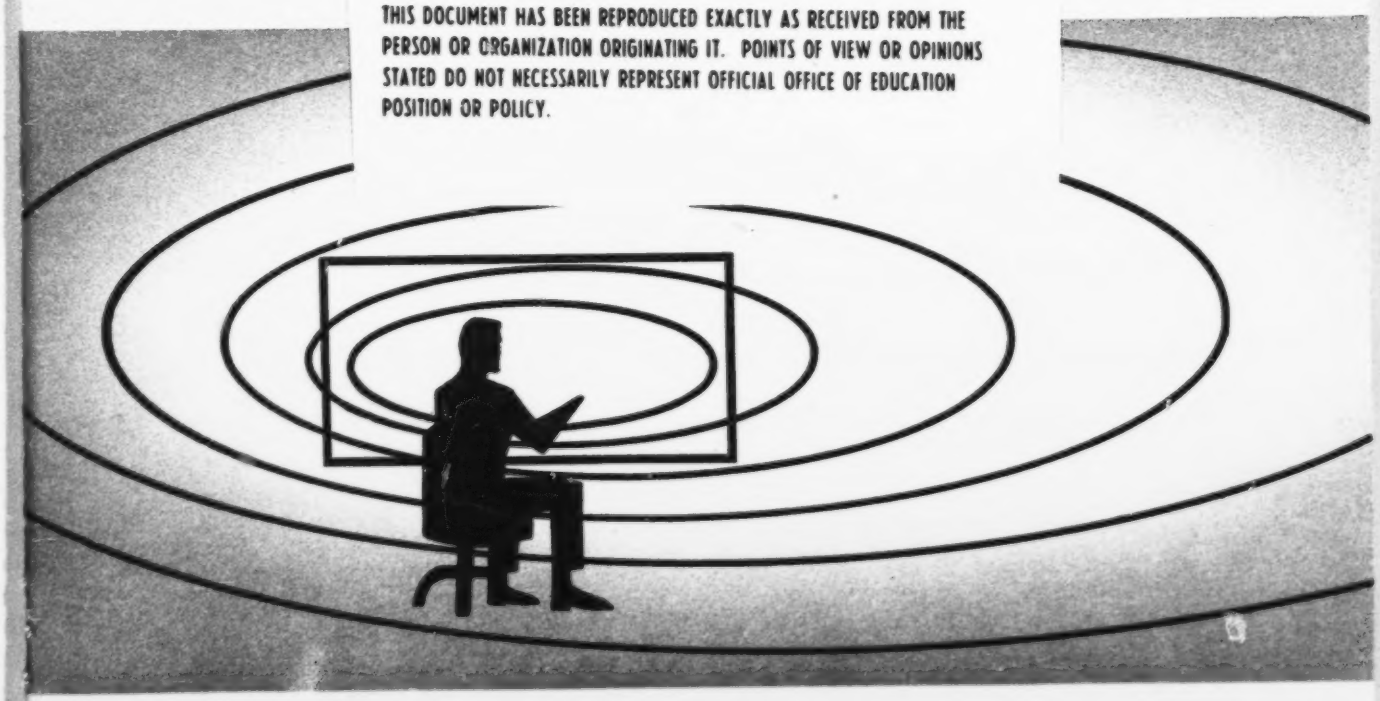

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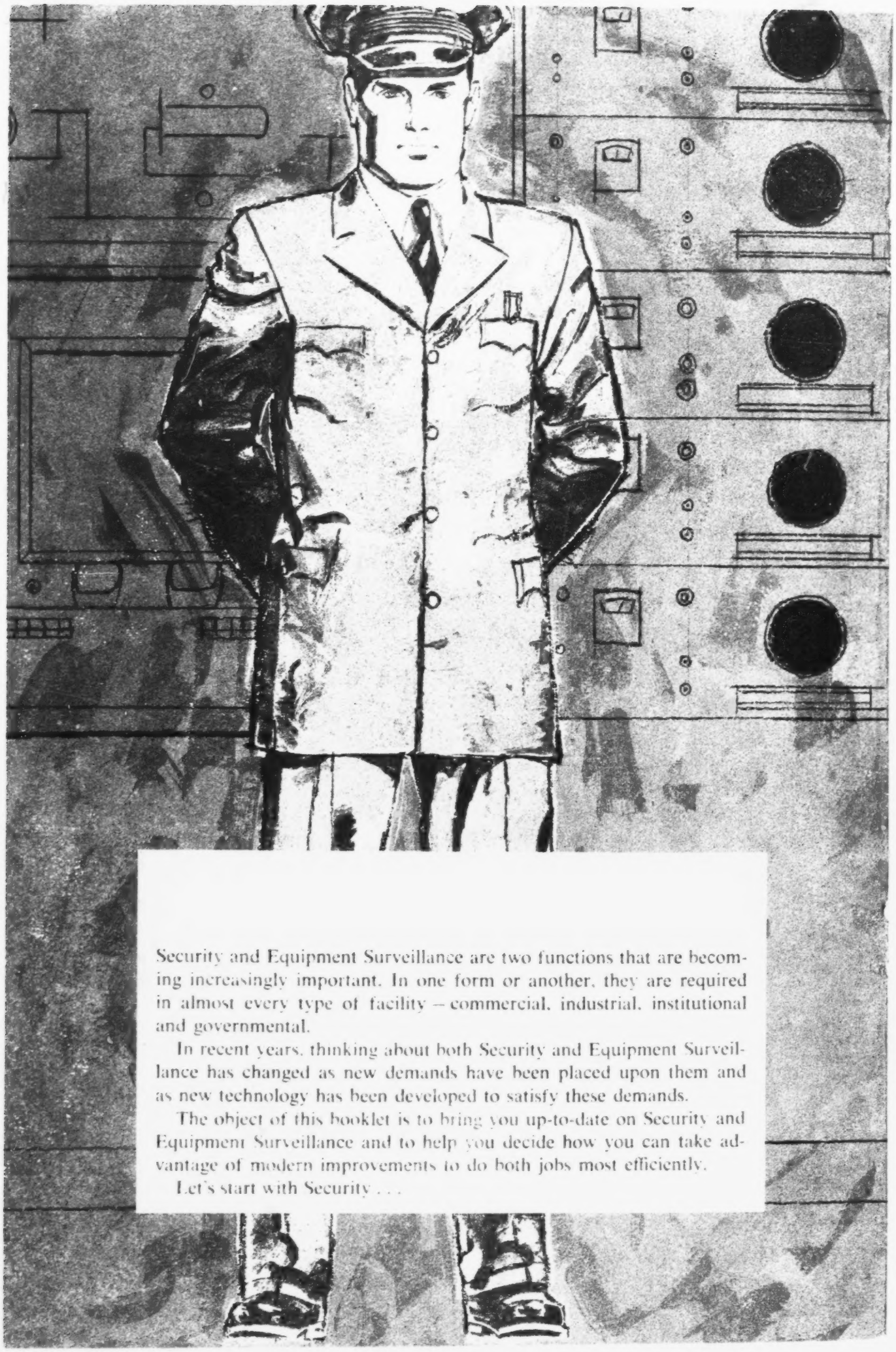
HOW TO SELECT THE PROPER

SECURITY AND EQUIPMENT SURVEILLANCE SYSTEMS

TO PROTECT YOUR FACILITIES



Security and Equipment Surveillance are two functions that are becoming increasingly important. In one form or another, they are required in almost every type of facility – commercial, industrial, institutional and governmental.

In recent years, thinking about both Security and Equipment Surveillance has changed as new demands have been placed upon them and as new technology has been developed to satisfy these demands.

The object of this booklet is to bring you up-to-date on Security and Equipment Surveillance and to help you decide how you can take advantage of modern improvements to do both jobs most efficiently.

Let's start with Security . . .

WHAT IS "SECURITY"?

The definition, in the modern business world, incorporates many viewpoints

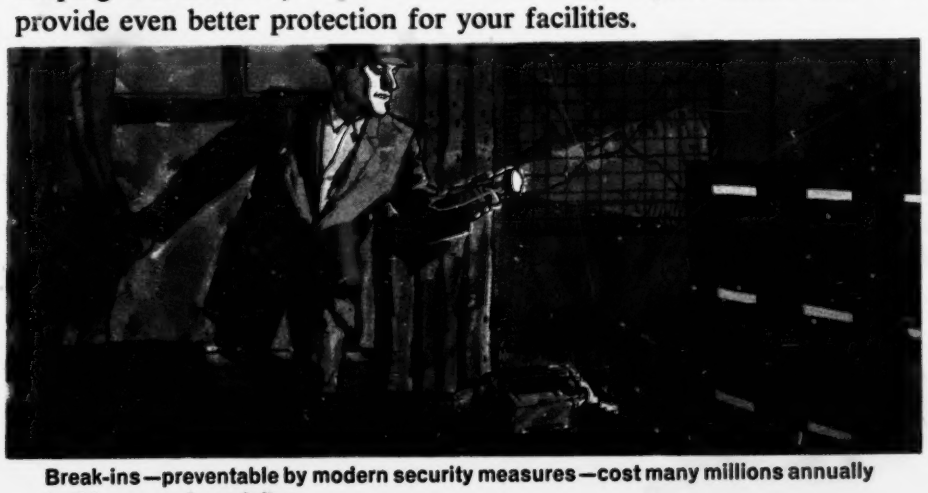
"Security", according to the dictionary, simply means: "the quality or condition of being secure".

To the modern businessman, security's first meaning is guards and equipment to protect his facilities. But he often finds that the definition can become quite a bit more complex. Security, in fact, means a variety of things to the people he works with in his daily activities.

First of all, to his guard force, it means providing enough men and equipment to do a *good protection job*. To his company directors and stockholders, it means providing adequate protection at the most efficient expenditure of funds in order to preserve *profits*. To his customers, security means keeping a critical overhead item at minimum cost in order to keep the *price* of his products or services at a reasonable level. And to his employees, it's a key factor affecting *morale*.

Unfortunately, it is possible to be complacent about security. But it is not realistic for a manufacturer to fully insure a $200 shipment to a customer but leave his $2,000,000 plant completely unprotected. Obviously, adequate security measures are just good business.

To you, then, security must mean all of these considerations – plus keeping a constant eye open for new security improvements that will provide even better protection for your facilities.



Break-ins—preventable by modern security measures—cost many millions annually in thievery and vandalism

This booklet was expressly written to help you achieve all of these goals, whether your building is an industrial plant, office building, school, church or hospital. If you are responsible for the security of a building, this booklet will help you select the most efficient security system for your facilities.

A BRIEF BIT OF BACKGROUND

War-time security needs have accelerated the growth of modern protection systems

The origin of alarm systems actually dates back to ancient times. Through many centuries, a variety of mechanical gadgets have been contrived in the attempt to detect intruders of all types.

The era of modern security, though, dates back just 100 years – to the advent of the electrically-operated alarm. The first of these were simple "burglar alarms", used to help protect banks and retail stores. These improved rather gradually in effectiveness until the World War I period, when national defense requirements led to the rapid development of much better systems.

Trained saboteurs spurred development of modern security systems

It wasn't until World War II, however, that the security industry really saw the major share of its growth. The threat of highly-skilled enemy agents made it necessary to invent more sophisticated and foolproof systems. Through the tense "Cold War" period, also, these systems have had to be continually refined and perfected.

The current state of the art is such that today, you can avail yourself of the modern types of systems that are described for you in the following pages of this booklet.

Security systems come in a variety of shapes and sizes

A word here about the major classifications of security installations that are commonly in use today. They include:

1. *Local alarm system* – A system in which the alarm sounding device is located in the immediate vicinity of the security area. Applications: shops, filling stations, other small retail establishments.
2. *Proprietary alarm system* – A system in which the alarm signal is relayed to a headquarters location owned, manned and operated by the proprietor, or his agents. Applications: school systems, industrial facilities, municipalities, office buildings, military bases, large institutional buildings and others.
3. *Central Station alarm system* – A system in which the alarm signal is relayed to a remote panel located at some centralized facility

owned by an outside agency – usually a privately-owned protection agency. Applications: Same as Local alarm systems.

4. *Remote Station alarm system* – A system where the alarm signal is carried to an alarm annunciator at a remote location such as a police station. (This system is often combined with Proprietary alarm systems to provide additional protection.) Applications: Same as Proprietary alarm systems.

Until recent times, Local and Central Station systems were the most common types. But today's requirements have now made Proprietary and Remote Station systems the most popular.

Local Systems

Local systems will continue to be used wherever it is impossible to transmit an alarm signal. However, the value of sounding an alarm right at the protected premises leaves much to be desired from 4 special standpoints:

1. The detection equipment is usually ultra-simple and is therefore easily defeated.
2. False alarms annoy neighbors.
3. Intruders may not be too disturbed by bells and other audible alarms if they know they have time in which to operate, or if the alarm is sounded only when the intruder is leaving the premises.
4. On-the-spot alarms rarely catch the intruder (for example, how many times have *you* responded to someone else's burglar alarm?)

Central Station Systems

Central Station systems enjoy popular favor in densely populated urban centers. In most "downtown" metropolitan areas, there are hundreds of small establishments which prefer a higher degree of protection than is possible with a Local System but which cannot afford their own guard force. To accommodate these businesses, a central station company is formed.

Leased telephone lines connect each individual business (subscriber) with the central station. Of course, the physical location of the central station must be close to the clients it serves in order to justify the service economically.

When an alarm is received at the central station, a dispatcher telephones the police department and requests that a patrol car be sent to the subscriber's place of business. In addition, many central station companies maintain a guard force of their own which is dispatched along with the municipal police in response to alarms. The central

station guards are frequently furnished with keys to the protected premises to permit immediate access in the owner's absence.

Proprietary and Remote Station Systems

Proprietary and Remote Station systems represent the newest and fastest growing classification of security systems. They were developed to satisfy the complex needs and the demands for extreme flexibility which typify so much of today's business activity.

Perhaps the most obvious example of a Proprietary system is one installed in an industrial plant which maintains its own guard force. Actually, the plant may consist of many separate buildings, each with its own individual security requirements. There may be areas devoted to classified government work; to storage of finished products; to office space; to manufacturing, and so on.

Whatever the requirements in each area may be, protection equipment can be devised to meet them. This equipment is then wired back to a control panel at a headquarters manned by the plant protection force. If adequately designed, the control panel will allow one man at headquarters to effectively protect the entire plant.

Frequently, the Proprietary control system is backed up with a connection to an alarm at police headquarters, forming a Remote Station system. This offers additional protection. For example, if the man at the Proprietary panel failed to take prescribed actions for any reason, an alarm would automatically be transmitted directly to the local police who would immediately investigate.

Many other organizations are using Proprietary and Remote Station systems in a wide variety of situations. For example:

School districts employ such systems to protect buildings from the ravages of vandalism. Schools located throughout a community may be ideally linked to one central point. In many cases, that point can be the local police department.

Office buildings have found it quite profitable to combine all protection facilities at one central point within the building.

Department stores, particularly those with several units, have minimized guard forces and increased protection with combination Proprietary and Remote Station systems.

Of course, military bases have swung to such systems as the best answer to the problems created by large physical facilities and widely divergent protection requirements.

IS A SECURITY SYSTEM PROFITABLE?

Taking a look at some of the advantages will help you decide this important question

Only a survey of the factors peculiar to your own installation will tell you how profitable you can expect a security system to be. That's why you'll want to study and carefully evaluate all of the automatic electronic systems that are now available to help you protect your facilities. The right combination of men and modern security equipment can often save you a large percentage of what you are currently allocating to security expense – and actually provide better security for your facilities!

There are a number of advantages common to modern security systems that you should first consider before evaluating each one of them for possible application.

Here are the most important ones:

1. They utilize central panels to help your guards co-ordinate your protection network.
2. Immediate electronic alarm signals save both footsteps and valuable reaction time.
3. They provide continuous protection of areas, not hit-or-miss "spot check" security.
4. They free manpower for other critical protection duties.
5. They give you extra peace-of-mind by providing the most complete protection possible.
6. They can save you money – in fact, more than $25,000 annually per 24-hour-a-day guard post wherever such posts can be eliminated, according to a government survey. This overall figure was arrived at by breaking down the cost of a guard post this way:

$ 6,500	(Average annual salary of a guard, plus expenses such as uniforms, gun, fringe benefits, etc.)
× 3	shifts per day
$19,500	
+ 6,500	(Cost of extra man needed to fill in for sickness, days off, vacations, etc.)
$26,000	Total cost of one 24-hour guard post

Now, on the following pages, let's take a look at the individual security systems that are available to you . . .

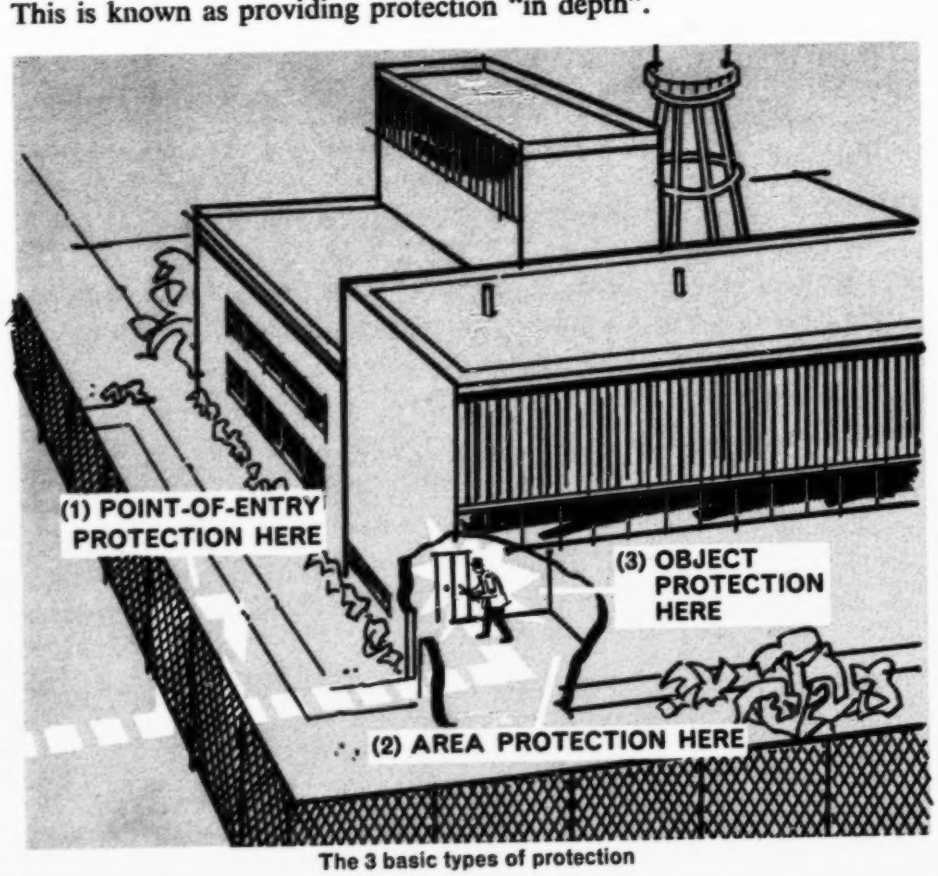
A CLOSER LOOK

Let's approach security systems the same way an intruder would—in their order of appearance

Let's begin our discussion of individual security systems by noting that such systems are usually classified into 3 categories relating to *location* of the protection provided within any facility. These 3 categories, in their proper order, are:

1 Perimeter (or point-of-entry) protection
2 Area (or space) protection
3 Object (or spot) protection

What this means is simply that you can provide protection at any or all of three successive levels – at an intruder's point of entry, through the general area he attempts to traverse or at the actual goal he wishes to reach. In critical applications, many owners wish to set up a series of baffling obstacles for the intruder – two or perhaps all three of these progressive, low-cost forms of protection as extra security insurance. This is known as providing protection "in depth".



The 3 basic types of protection

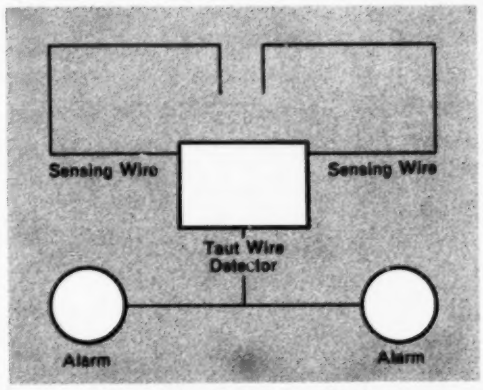
PERIMETER PROTECTION

Your first line of defense —and what's available to help you

Perimeter protection is your defense outpost. Good protection at the perimeter of your facilities will sound the alarm at the first breach of security. There are two kinds of perimeter protection – outdoor and indoor.

A particularly effective and practical method of providing reliable outdoor perimeter protection is with a *taut wire detection system.*

This system, as developed by Honeywell, can be used to guard up to 1000 feet of perimeter per control panel. Additional panels and detection wire can, of course, be installed as needed.



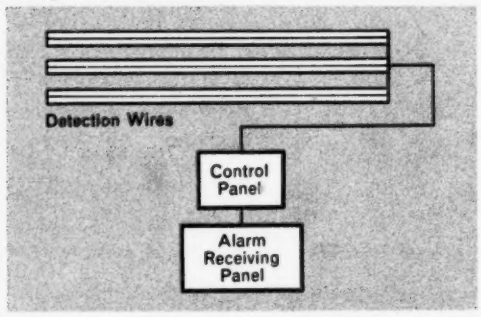
Taut Wire Detection System

In the taut wire detection system an almost invisible but very strong wire is strung along the top of a fence or wall. It is held in tension by a small weight at one end and, at the other end, by a spring mechanism within the taut wire control panel. The panel has a special two-way switch so that both a *relaxation* of the tension (due to wire-cutting, for example) or *addition* to the tension (pressure from an intruder's hand, say) will set off an immediate alarm. The tension is such that the wire need not actually be touched to set off an alarm – movement of the fence caused by even a careful climber will activate it.

This dependable and simply-constructed system allows you to protect vast stretches of perimeter at exceptionally low cost. It's a system that has proved its effectiveness through many working installations at leading firms, institutions and military installations.

Other outdoor perimeter protection equipment, now mostly in an experimental stage, include: (1) electronic fence systems; and (2) radio frequency systems.

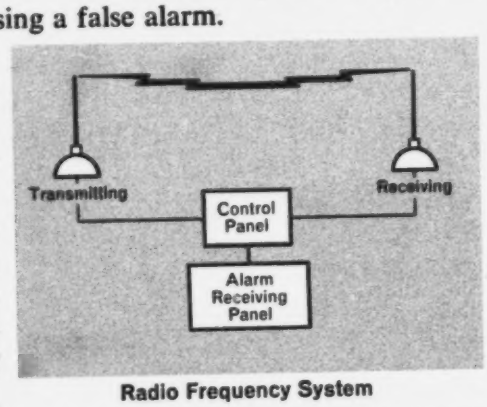
The typical electronic fence consists of 9 wires (3 levels of 3 wires) stretched along the perimeter inside a chain link fence or other physical barrier.



Electronic Fence System

The surface beneath the electronic fence should be paved to prevent swaying weeds or grass from causing a false alarm.

The electronic fence wires create a field of electrical energy. Anything disturbing this field unbalances a circuit which generates an alarm signal.



Radio Frequency System

The radio frequency system, while also experimental, appears more promising. A transmitting antenna beams invisible radio waves along the perimeter of the property to be protected. A receiving antenna picks up the radio frequency (RF) waves. A person entering this invisible beam causes a change in antenna loading which, through electronic amplifiers, causes an alarm signal to be actuated.

Indoor Perimeter Protection guards doors and windows against intrusion

Indoor perimeter protection is easier to accomplish since the almost insurmountable climatic problems are eliminated, or at least minimized. But many other problems remain. One major factor is the expense involved in thoroughly protecting the total perimeter walls of a building (which, of course, would still have floors and ceilings unprotected). Another major problem is the configuration of the building and the partition walls within it.

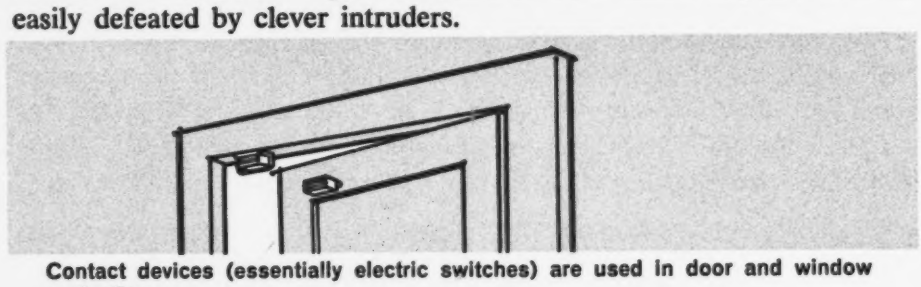
The impracticality of total indoor perimeter protection, in most cases, has led to two alternatives: (1) area protection and (2) protection at points of normal access (primarily doors and windows). Area protection is discussed later. Let's consider the other alternative now.

Metal foil strips are widely used in window protection—but have drawbacks

Metallic foil is a rather ubiquitous form of detection device for windows and glass doors. Strips of foil are taped to a glass surface in the

expectation that the foil will break if the glass breaks. In effect the foil is like a fuse: breaking the foil breaks an electrical circuit. When the circuit breaks an alarm is actuated.

Unfortunately, the foil or "window tape" is somewhat prone to false alarms and resultant high maintenance cost. More important, it is easily defeated by clever intruders.



Contact devices (essentially electric switches) are used in door and window protection

Contact devices are also widely used. In effect, these are electric switches affixed to a door or window in such a way that opening the door or window actuates an electrical circuit and consequently signals an alarm.

Most devices of this type can be defeated by experts but they are not as obvious as metallic foil and are relatively maintenance-free.

Experts in the security industry recommend contact devices for auxiliary protection in conjunction with electronic area protection.

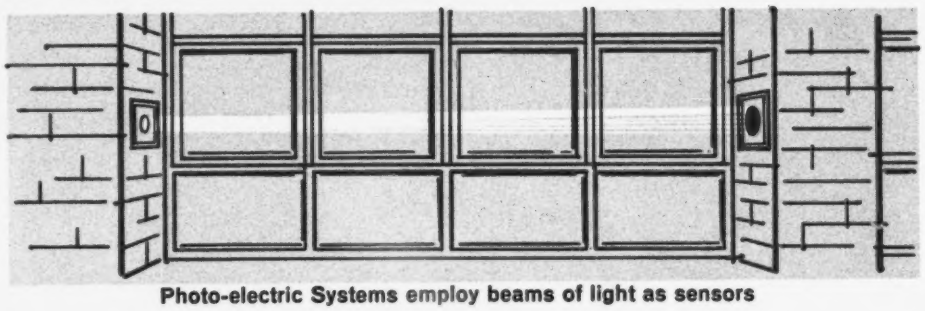


Photo-electric Systems employ beams of light as sensors

Photo-electric systems are basically the same systems used to open supermarket doors automatically for customers. When a light is beamed at a receiving cell, an electrical current flows. When the beam is interrupted, an alarm is set off.

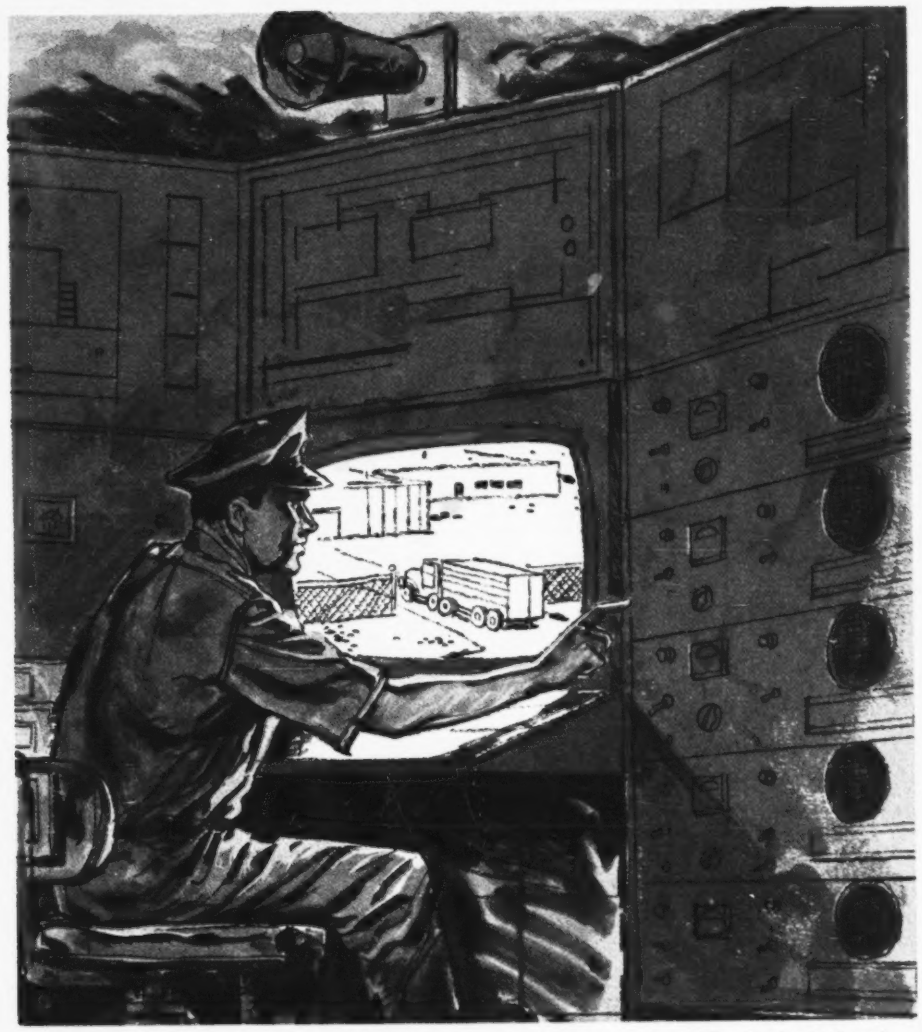
Invisible light – infrared or ultraviolet – can be used to make the system difficult for an intruder to spot. When visible light is used, additional protection is offered by making the light a flickering beam; one that is interrupted in fixed sequence. Since the light source and receiver are tuned to the same frequency, an intruder cannot substitute another light source. Mirrors can be used to reflect the beam over a wide area or to completely surround an object.

PERIMETER AND AREA PROTECTION

You can safely monitor gates and doors up to 4 miles distant by remote control

Equipment is now available which permits you to remotely supervise all types of gates and doors, located both at the perimeter of your facilities and at interior locations.

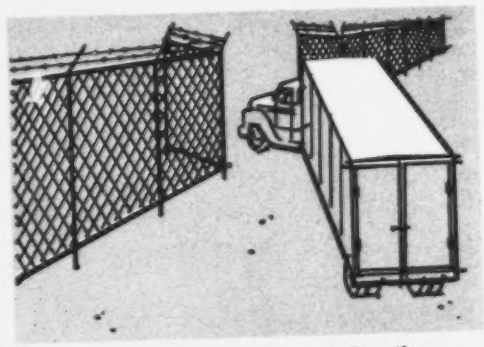
This type of modern control system enables you to reduce your overhead costs significantly through the elimination of costly guard posts. (As we've mentioned, manning such a post can cost you $25,000 or more annually.) And these systems can free your existing guard force from sporadically-used posts to do much more effective protection work.



Closed-circuit TV can be added to the central security panel for instant visual "check-outs" of key locations

A good gate and door control system should include: (1) a signalling device for use by the person seeking to gain entrance; (2) a loudspeaker-microphone for him to identify himself and receive instruction; (3) a gate or door position indicator; (4) an electro-mechanical release lock or motorized control which the guard can operate from headquarters after the person identifies himself properly and, (5) a control panel with two-way communication facilities that is located at a remote guard headquarters. Closed circuit television can also be added in critical applications.

The Honeywell gate and door control system accomplishes all of the above functions (except closed circuit television) with a single pair of wires which may be leased telephone lines. Thus, installation costs are minimized. Of course, closed circuit television requires special wiring considerations, such as for coaxial cable, for example.



Gates and doors at remote locations can be opened from central security panel by a single guard

The signalling device may be a simple pushbutton or a sophisticated detection device. Car and truck gates frequently use devices such as the Honeywell Traffitrol which is an infrared "vehicle detector". Automatic detection devices for vehicles or people are used to alert the guard as a truck or person *approaches* the controlled entrance point.

Loudspeakers and microphones (both functions are combined in one device in the Honeywell system) are used for identification and instructional purposes. The gate or door position indicator satisfies the guard that a gate is firmly closed, that a door is really locked, that a bolt is securely in place.

Most doors and some gates use an electro-mechanical lock release device. Pushing a button at the control panel energizes an electrical circuit which allows the person at the remote door or gate to open it. Large gates are frequently motorized and in such instances, controls at guard headquarters permit the full positioning of gates from *completely open* to *completely closed.*

Control panels may take several forms. In the Honeywell system, small installations are usually handled with a desk-mounting console; large jobs involving several doors and gates usually employ modular units which are mounted together in a rack.

AREA PROTECTION

Automatic "Listening Posts" can help you detect and even scare away intruders!

One of the most effective methods that has been developed to detect the presence of unwarranted personnel in an area is through the use of automatic *audio detection systems.*

These systems use microphone-speaker units (or "audio detectors", as they are called) that are installed in an unoccupied area to listen for suspicious sounds. Any strange noises, such as those made by a vandal or burglar, are immediately picked up and reported to an alarm panel at guard headquarters (or any other desired location).

Audio Detection System picks up slightest intruder *noise*

The sensitivity of these systems can be adjusted to pick up the exact level of sound needed for each application – a tap on a window, a muffled cough, footsteps, whispering, etc. Any sound above the prescribed level instantly sets off an alarm at the remote monitor panel. In the Honeywell system, the guard on duty can then throw a switch and carefully listen to the actual sounds to determine how many intruders there are and what they are doing. This feature can eliminate the possibility of false alarms.

If the situation warrants it, he can dispatch a guard patrol to the scene – and this is where the two-way communication feature of the Honeywell system becomes particularly valuable.

While the patrol is on its way, the headquarters guard can continue to listen in. When the patrol arrives, he can give instructions and continue to monitor the situation thus assuring complete control at minimum jeopardy to the responding patrol.

In some instances, the two-way communication feature is used by the headquarters guard to issue scare commands to frighten or confuse the intruder.

By substituting "contact" microphones, the audio detection system can be used to detect sound vibrations through very thick walls. Thus, a contact microphone affixed to the inside wall of a vault will detect even muffled tapping on the outside wall.

The same principle can be applied to detect children running on a

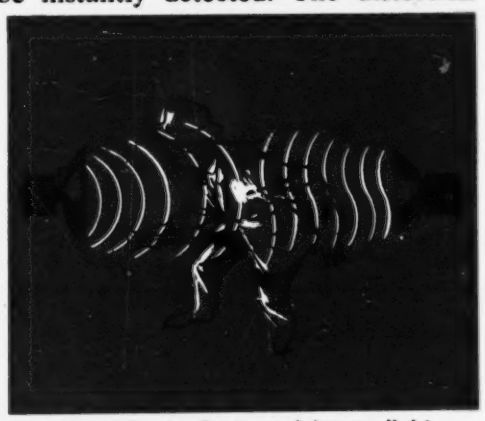
school roof. It is also used, with a minor modification, to detect a body falling into a swimming pool in that type of security application.

This system is another example of how modern electronic security equipment can release guards for other important duties and provide constant protection at any area within your facilities. Today, there's no need for hit-or-miss "spot check" security by roving patrols when you can have this reliable security system installed and working for you at critical locations.

And—intruder movements can also be detected and tracked with modern security systems

Basically, there are two types of systems for detection of motion in security areas. One system emits and receives radio waves to detect an intruder. The other sets up a pattern of sound waves and initiates an alarm when the presence of an intruder distorts the pattern.

In the sound wave system, it's the *pattern* of the waves that's important. These waves are vibrated between two speakers within an enclosed area and a basic wave pattern is established that saturates the area to be protected. Any distortion in this pattern caused by the slightest human movement can be instantly detected. The distortion is amplified by a nearby panel which sends an immediate signal to an alarm panel at guard headquarters.



Sono Sentry System picks up slightest intruder *movement*

In multiple-zone installations designed by Honeywell, graphic floor plan layouts at the control panel location allow the movement of an intruder to be tracked from one zone or area to another. In all Honeywell installations, provisions are available for determining the actual amount of movement which is occurring.

This is an ideal security system for use in unoccupied areas that are particularly vulnerable. As you know, these areas are often easy prey for all types of intruders, including thieves who hide until after hours and, of course, do not have to contend with perimeter defenses.

The "Sono Sentry" system by Honeywell even has provision for special alarm signals in the event of possible tampering or circuitry failure.

OBJECT PROTECTION

Critical objects to protect? Intruders can't fool a modern electronic Capacitance system!

When it comes to protecting specific units such as desks, filing cabinets, safes, doorways to rooms, etc., there's an "all-seeing eye" available to you to detect intruders.

It's a security system that's based on an electrical phenomenon known as "capacitance". Essentially, a capacitance system utilizes a particular type of electrical field surrounding an antenna. The field is unerringly altered when a person approaches or actually touches the antenna. (A common household example: ever notice how a TV picture changes when you come near or touch a "rabbit-ears" antenna? This security system takes advantage of the same principle.)

This highly-sophisticated security system is based on a special panel which has two electrical circuits in perfect balance. These circuits are exactly alike except that one of the circuits has an antenna attached to it . . . a sensitive antenna that is concealed and wound around the object or spot to be protected. The Honeywell version of this system is the Secret Sentry system and can accommodate up to 50 adjacent units with a single panel, interspersing "live" antenna and "dead" cable, as required.

When this "live" antenna senses an approaching body, the electrical

Intruders can't see, can't feel, *can't fool* the Secret Sentry sensing field

balance of its Secret Sentry panel is immediately upset. This triggers a signal which is instantly conveyed to an alarm panel at guard headquarters. A capacitance system will work in almost any type of situation where its detector antenna can be insulated from ground.

LINE SUPERVISION

This feature guards against tampering, broken wires and malfunctions

All security systems in general use today use wires to connect the various detecting devices with the alarm receiving equipment. Frequently, these wires are telephone lines leased from the telephone company. But, they may be wires of almost any kind.

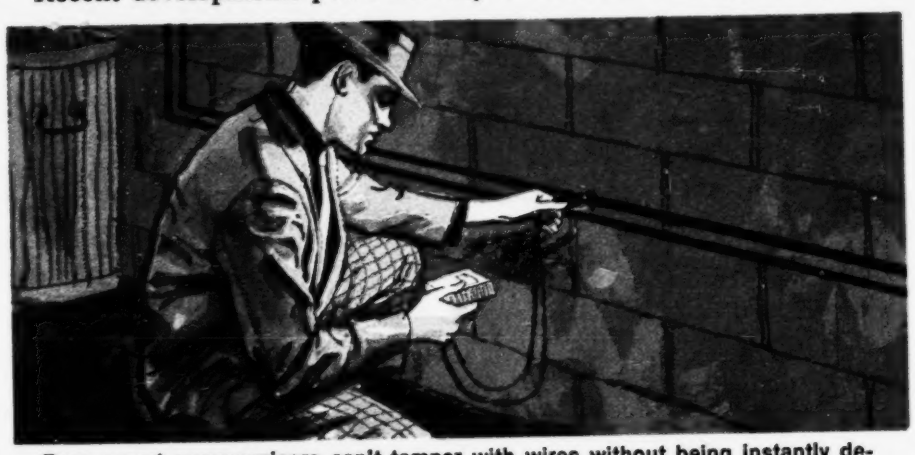
A short circuit, a broken wire, or other serious malfunction would render the security system inoperative. Therefore, all well-designed systems must have provisions for automatically checking circuits and actuating an emergency signal in the event of a line failure. This is generally known as simple line supervision and is quite common in fire alarm, equipment surveillance, and security systems.

In addition, the best-designed security systems provide tamper supervision. This feature is required to guard against someone tampering with the wires without causing an actual short circuit or broken connection. Security systems which do not provide this feature can be defeated or compromised with surprising ease by expert intruders.

The general industry standard is for 30% to 40% line supervision which means that a 30% to 40% change in either current or resistance will actuate an alarm signal.

Honeywell systems are available with adjustable line supervision and will detect line current variations of less than 5%.

Recent developments point the way to even more foolproof systems



Even expert compromisers can't tamper with wires without being instantly detected when the system has Line Supervision

of line supervision. The Honeywell Maxsecom system, for example, uses infrared beams between protected areas and guard headquarters. Although this system is still in the development stage, results to date have been most encouraging.

EQUIPMENT SURVEILLANCE

It's becoming increasingly important in modern buildings—and here's why . . .

Let's start with a look at the household of today. It contains dozens of electrical and mechanical devices: heating plants, refrigerators, ranges, water softeners, and many more. Every piece of this equipment can fail and, according to "Murphy's Law," every piece of equipment *will* fail at some time or other. These failures can be minor, such as burning a slice of bread in a faulty toaster; expensive, such as spoiling a large quantity of meat because a deepfreeze stopped working; or disastrous, such as an explosion and fire caused by a defective heating unit.

Great as the equipment and appliance problem may seem to the home owner, in non-residential buildings, the problem of watching over equipment is many times greater. In the first place, today's modern structures are almost more *machine* than building. The number of fans, motors, pumps, compressors, and other equipment is often staggering. Secondly, many areas in any building or group of buildings are unattended for long periods of time which precludes early detection of most equipment failures. Third, it is becoming increasingly uneconomical to check on vast quantities of equipment with manpower. And fourth, a comparatively low degree of efficiency is attained with mere routine visits to each equipment area only two or three times during an eight-hour period.

Yet, we are continually using more and more equipment, and from automatic elevators to low-pressure boilers, this equipment is placed less and less under the direct supervision of a trained operator.

The inexorable trend to building automation now makes it imperative that a system be used to watch over equipment automatically

Systems which automatically monitor equipment are becoming more and more widely used. They are called "surveillance systems." Let's analyze what they can do.

Basically, an Equipment Surveillance system monitors all or a selected number of mechanical and electrical devices or systems. Malfunctions or off-normal conditions are instantly reported at a central surveillance panel which is constantly supervised by your own personnel or by some independent agency.

Thus, one man at the central panel may constantly check on all equipment in the building. In practice, this same man would usually receive other signals such as those for fire and security alarms. Further,

this same man, provided with an integrated Honeywell temperature control central panel, could also observe, analyze and adjust temperature and humidity conditions throughout the facility.

An equipment surveillance system basically consists of two elements: alarm transmitting devices and alarm receiving panels. The alarm transmitting devices take many forms: pressure switches, thermostats, power relays, bearing temperature sensors, etc.

Frequently, safety devices which are furnished with equipment have provisions for alarm circuits. In such instances, it is relatively simple to connect the alarm circuit to the alarm receiving panel.

Often, however, a sensing and alarm transmitting device must be added. A trained expert in this field can handle this situation at a surprisingly low cost.

In Equipment Surveillance, it's always wise to customize your system

The alarm receiving panel (such as the Honeywell W244) is the heart of any equipment surveillance system and for maximum benefit should be designed for the specific installation it is to control. A standard "package" is rarely, if ever, adequate. The preferred solution is to customize the alarm receiving panel from standard components. In this way, you can accomplish the precise results you want at a very reasonable cost.

An example of customizing may illustrate the point. Performance of some of the equipment which is monitored may have little or no immediate effect on other equipment in the building, and alarm signals from this equipment may be reported at the central panel directly and in random order. However, there are many instances where this is not the case. For instance, it is quite common to monitor the water level, the pressure, and the combustion of a boiler. If the water level fell dangerously low, an alarm would be transmitted to the central panel. But, at the same time, the low-water-level safety device on the boiler would immediately shut off the combustion and thus a combustion failure signal would also be transmitted. And of course, these actions would lower the boiler pressure which in turn would cause a boiler pressure alarm signal to be sent to the central panel. These actions would all occur so rapidly that the operator at the central panel could not tell which signal came in first and consequently he would not know the actual cause of the trouble.

For all applications such as this, Honeywell provides a special feature which "locks in" the first alarm (the low-water-level alarm in our

example) and excludes the alarms which would have resulted in normal sequence from the first off-normal condition. Wherever a sequence of related events takes place the Honeywell W242 panel identifies the primary malfunction.

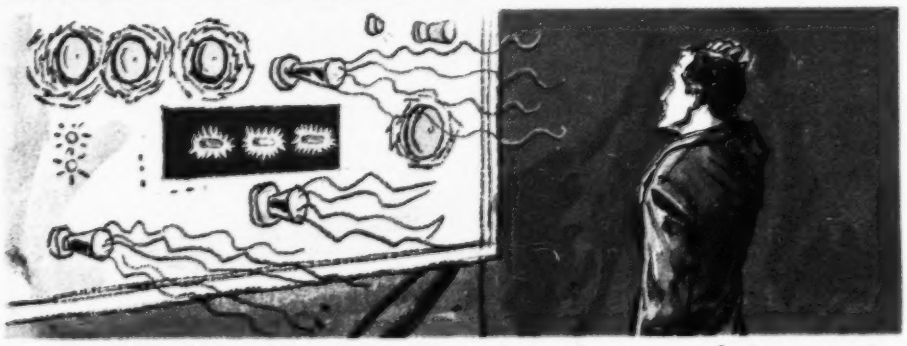
When desired in customized systems, the Honeywell system can provide voice intercommunication over the alarm signal wires between alarm transmitting devices and the alarm receiving point. No special communication system wiring need be added.

Besides one main alarm receiving panel, it is frequently desirable to use one or more auxiliary panels. Many executives want to be immediately alerted to certain alarm conditions. The auxiliary panel serves this function.

Beware of "hodgepodge" Equipment Surveillance systems

Every building needs some form of equipment surveillance. And most buildings have some semblance of it. But frequently the alarm signals are a hodgepodge of various lights, horns, bells, and buzzers scattered throughout the building. Someone may have known what each thing signified when it was installed, but after a few years the persons responsible for it move on and no one is left who understands the crazy-quilt of devices.

The best approach to providing an adequate and reasonably-priced Equipment Surveillance system is to call in *experts trained in this field.*



Unrelated Equipment Surveillance alarms can easily cause confusion, prevent prompt corrective action

Only they are equipped to help you avoid the pitfalls that can otherwise all-too-easily develop. Experienced designers should work with you to plan an economical and practical Equipment Surveillance system that will give you top efficiency for years to come.

Honeywell maintains free Equipment Surveillance and centralized control consultant services in 112 branch offices.

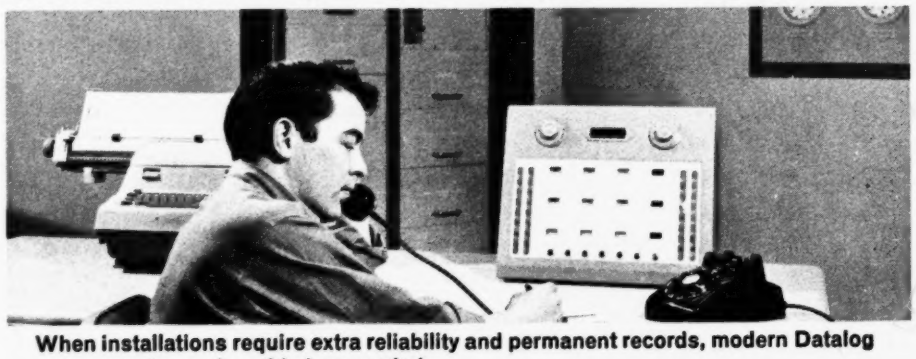
New developments in surveillance equipment offer important new advantages

Recent advances in equipment surveillance have broadened the horizon to make it possible for any size facility to monitor a great many critical functions at a most economical cost.

The ScanAlarm Operations Monitor by Honeywell monitors 100 functions constantly and signals trouble automatically. It requires a space not much larger than required by a table radio. Whenever any off-normal condition occurs, the ScanAlarm checks all 100 points within ⅕ of a second. Points which are in alarm are clearly displayed.

For large installations requiring a very high degree of reliability and a permanent record of alarm conditions, Honeywell has developed the DATALOG. It continuously "logs", or prints, system variables – i.e., the temperatures, steam pressures, humidity, amount of liquid flow and other necessary readings from important points throughout the system. Any number of variables may be logged to ascertain the system is operating at maximum efficiency.

Since most such variables are analog signals, i.e., voltages representing pressure, flow, etc., they are converted by the DATALOG to digits which are logged on an automatic typewriter in terms of degrees fahrenheit, pounds per square inch, gallons per minute, and so on. Thus, the building engineer is provided with a complete analysis of his mechanical and electrical systems, all prepared automatically.



When installations require extra reliability and permanent records, modern Datalog components can be added as needed

The alarm point scanning feature of the DATALOG is outstanding. Six hundred points are scanned each minute and points which are in alarm are automatically recorded.

Based on accelerated life tests, the DATALOG components have an estimated life of over 900 years and the accuracy is one digit or one part in 2000, from minus 999 to plus 999.

Equipment programming keeps equipment on schedule, keeps power costs at a minimum

Equipment programming has become an increasingly important part of Equipment Surveillance systems. In small and medium size installations, a standard programming system such as the Honeywell Clockmaster is used to turn on lights, machinery, heating plants, and so forth, on a pre-determined schedule, then turn them off as the schedule requires.

But where frequent changes in start-stop programming are required and where heavier utility loads are encountered, the Random Program Sequencer (RPS) developed by Honeywell is fulfilling a long-felt need.

This unique system makes it possible to start and stop an almost infinite number of pieces of equipment, or to add or remove heavy electrical loads in a sequential pattern so as to reduce the size and cost of electrical buses and conductors. Another major advantage, of course, is that this system keeps the electrical demand factor (which determines the rate charged for electricity) at the irreducible minimum consistent with the loads involved.

A built-in memory automatically functions in the event of power failure to recreate the pattern of operation pre-established. Each system has provisions for a maximum of 144 time program channels every 24 hours.

All loads controlled by the RPS are sequenced at adjustable intervals from 5 to 30 seconds, thus guaranteeing that the next load in the program cannot come on the line until the last one has been on for the time interval selected.

The RPS makes it easily possible to do things which are impossible to do manually. Imagine for a moment the problem presented on power failure. If all electrical loads were activated on resumption of power, you would probably blow all circuit breakers. At least you would attain a peak load far in excess of normal, resulting in a much higher cost of electricity.

Getting equipment back in operation when power is resumed is usually a major problem involving many men scurrying from place to place. With the RPS, all loads come back on the line automatically in the sequence and priority you want with exactly-proper time intervals between loads to insure minimum demand of electricity.

This breakthrough in building automation gives you control of your electrical system at one central point. And it permits complete flexibility in programming without the time-consuming manual plant tours which would otherwise be required.

Both Security and Equipment Surveillance Systems can be monitored by the same custom-built central panel

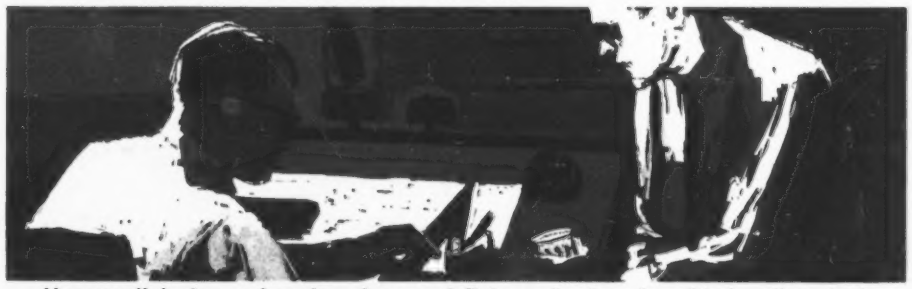
GET EXPERT PLANNING HELP

Only trained engineering specialists are qualified to help you select the exact security/surveillance systems you need

The Security and Equipment Surveillance control systems designed for any facility should always be carefully planned and custom-designed in order to achieve maximum efficiency and economy of operation for the purchaser. That is to say, each individual situation will have certain inherent advantages to capitalize upon and, conversely, various pitfalls that must be avoided. And it takes experienced eyes to detect factors that could save many important dollars for you, once your system is in operation.

That's why, if you are contemplating a Security and/or Equipment Surveillance control system installation, it's a wise idea to call in expert assistance in the early planning stage. Your architect and consulting engineer will be able to offer valuable advice, and your nearby Honeywell office is at your service.

We maintain the world's largest and most experienced staff of automatic control system design specialists – engineers who are fully conversant with all phases of modern centralized control, including the finest Security and Equipment Surveillance systems yet developed. These men can help you evaluate such considerations as the adviseability of installing a system, what type of system you should install, exactly what type of equipment is available to meet your needs and what it would cost you to add this advanced type of control to your facilities.



Honeywell design and engineering specialists are best equipped to handle today's complex automatic control problems

For additional information, or for further help in planning a Security and/or Equipment Surveillance system for your building, call your nearest Honeywell office, or write:

William M. Boyle, Manager, Security/Surveillance (S)
Commercial Division, Honeywell
2747 Fourth Avenue South, Minneapolis 8, Minnesota
Mail Station 225

Electronic signals replace footsteps when you add central panels to control your building's systems

In addition to Security and Equipment Surveillance system control, it is now possible to combine many other system operations into the same all-inclusive panel, which can be conveniently located at guard and/or maintenance headquarters (or wherever else you may wish to install it). Many centralized control panels have already been installed to provide complete control and monitoring of building mechanical systems. For example, some of the individual systems that are being centralized in this way include fire alarm, clock, electronic air cleaning, lighting, air conditioning systems and others.

Honeywell Supervisory DataCenter* control panels not only centralize control and monitor functions at a central point, but can also perform the same functions automatically without human supervision. These Supervisory DataCenters feature system diagrams that are clearly outlined, like roadmaps, in clear engraved plastic to facilitate control for operating personnel.

In large buildings or groups of buildings, where many air conditioning systems must be controlled from one DataCenter, a Honeywell Selectographic* Console is recommended. The console presents the operator with a series of selection buttons which flash the individual sub-system layouts on a single viewing screen. At the same time, Selecto-

The ultimate in modern control: a Honeywell Supervisory DataCenter with a Selectographic console to monitor all of your important building operational systems

graphic controls in the sub-system are connected electrically to the adjustment switches and gauges at the console.

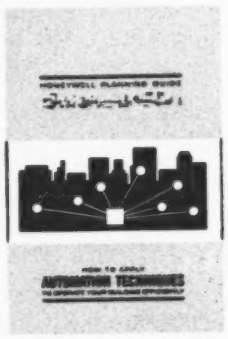
Other control and monitoring functions can be added to the control panel with individual modules.

Within the last five years, Honeywell advances in centralization and automation have revolutionized the control of operational systems in buildings. *Honeywell Trademarks

SIX MORE PLANNING GUIDES

This report on Security and Equipment Surveillance is one of seven booklets prepared by Honeywell to inform businessmen about latest advances in control system techniques. For complete information on control systems, you are encouraged to send for any or all of the six other booklets listed below. For any of these booklets write to:

Inquiry Supervisor, Mail Station 118 (S)
Honeywell, 2747 Fourth Avenue South
Minneapolis 8, Minnesota



How to apply AUTOMATION TECHNIQUES to operate your building efficiently

54-1016

How to provide AUTOMATIC FIRE PROTECTION for your building

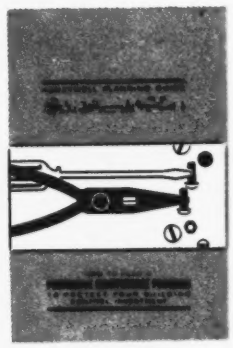
57-6008

How to match TEMPERATURE CONTROL to the uses of your building

54-0075

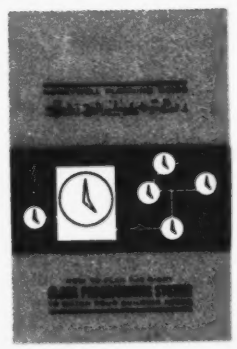
IN CANADA – For complete information on Honeywell control systems, telephone your nearest Honeywell office. If you would like to have a salesman call, or would like any of the six booklets listed below, please write to:

E. Duncan
Honeywell Controls Ltd.
Toronto 17, Ontario



How to plan a PREVENTIVE MAINTENANCE PROGRAM to protect your building control investment

54-0074



How to plan the right CLOCK PROGRAMMING SYSTEM to match your building needs

57-8007

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First in Control

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Manufacturing in United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

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